

REMARKS

Claims 2, 6, 7 and 9-11 are pending in this application. By this Amendment, claims 2, 6, 9 and 10 have been amended and claims 8 and 12 have been canceled. Claims 2, 6 and 10 are independent. Reconsideration of the application is respectfully requested.

I. Amendment

Support for the amendments to claims 2, 6 and 10 can be found in the specification at, for example, original claims 8 and 12, Fig. 5 and page 8, lines 6-14. Claim 9 has been amended for consistency. Thus, no new matter is added.

II. Objection To The Claims

The Office Action objects to claim 9. Claim 9 has been amended in accordance with the Examiner's suggestion. Accordingly, withdrawal of the objection is respectfully requested.

III. The Claims Define Patentable Subject Matter

The Office Action rejects claims 2 and 6-12 under 35 U.S.C. §103(a) over U.S. Patent Publication No. 2002/0038732 to Sugiura et al. (Sugiura) in view of U.S. Patent No. 7,130,205 to Peng and further in view of Japanese Patent Publication No. 2003-235252 to Tsuchiya. This rejection is respectfully traversed.

Independent claims 2 and 6 recite, *inter alia*, "the operation is switched to the single phase drive mode during the multiple phase drive mode when the equivalent value becomes smaller than a first value, and the operation is switched to the multiple phase drive mode during the single phase drive mode when the equivalent value is larger than a second value that is larger than the first value" and "the first and second values are both set less than a threshold value at which a total loss of the voltage converter for the single phase drive mode surpasses a total loss of the voltage converter for the multiple phase drive mode."

Independent claim 10 recites similar subject matter. The applied references fail to teach or render obvious the recited features of independent claims 2, 6 and 10.

The Office Action relies on paragraphs [0021] - [0027] of Tsuchiya for corresponding with the control method for controlling the recited phases of operation of the voltage converter. However, Tsuchiya merely discloses a controller that controls master DC-DC converter 31 and slave DC-DC converters 32 and 33 based on the demand output voltage from an inverter 2, the I/O current and electric-potential-difference information from current/voltage sensors 5 and 6. Fig. 3 of Tsuchiya discloses the control procedure of the controller during power regeneration. Based on output voltage V_{Omax}, the controller adjusts the DC-DC converters 31-33. See Fig. 3 and paragraphs [0020] - [0028] of Tsuchiya. However, Tsuchiya does not utilize different V_{Omax} values to determine whether the controller needs to adjust the DC-DC converters. Thus, Tsuchiya merely discloses a system control based on a required value but does not disclose the claimed phase number change control performed in accordance with a value equivalent to an input/output conversion energy volume or operation volume of the voltage converter (the actual measured value).

Furthermore, in the present application, when the recited first and second values are both set less than a threshold value at which a total loss of the voltage converter of the single phase drive mode surpasses a total loss of the voltage converter for the multiple phase drive mode, not only is the occurrence of hunting prevented, but the total loss of the voltage converter is minimized as well because both the first and second voltages are set with respect to the threshold value where the total loss for the single phase drive mode surpasses the total loss for the multiple phase drive mode. See page 8, lines 9-14 of the specification. By setting, in advance, the first and second values of a specific value, troublesome actual measurements of passing power of the voltage converter can also be avoided. See page 8, lines 6-9 of the specification. Tsuchiya fails to recognize these advantages. Thus, Tsuchiya

fails to teach or render obvious the operation is switched to the single phase drive mode during the multiple phase drive mode when the equivalent value becomes smaller than a first value, and the operation is switched to the multiple phase drive mode during the single phase drive mode when the equivalent value is larger than a second value that is larger than the first value and the first and second values are both set less than a threshold value at which a total loss of the voltage converter for the single phase drive mode surpasses a total loss of the voltage converter for the multiple phase drive mode. Sugiura and Peng fail to cure the deficiencies of Tsuchiya. Accordingly, the applied references fail to teach or render obvious the recited features of independent claims 2, 6 and 10.

The dependent claims are patentable at least due to their dependence on allowable independent claims 2, 6 and 10 and for the additional features they recite.

Accordingly, withdrawal of the rejection of the claims is respectfully requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 2, 6, 7 and 9-11 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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